1. Definition and Purpose of Depreciation

- **Definition**: Depreciation is the systematic and rational allocation of the cost of a tangible fixed asset (property, plant, and equipment - PP&E) over its useful life. It is **not** a valuation process or a fund for replacement; it's cost allocation (matching principle).
- **Purpose** (from Matching Principle): Matches the asset's cost (expense) with the revenues it generates over time. Per FASB SFAC No. 8, expenses are recognized when economic benefits are consumed.
- **Key Rationale**: Assets like machinery lose value due to wear/tear, obsolescence, or time passage. Depreciation reflects this in financial statements.
- **Non-Depreciable Assets**: Land (infinite life), but buildings on land are depreciable.
- **Exam Tip**: Questions often test if you understand depreciation is **allocation**, not cash flow or market value adjustment. Common distractor: Confusing with revaluation (IFRS only).

2. Factors Determining Useful (Economic) Life

- **Primary Factors**:
  - **Passage of Time**: Calendar-based wear.
  - **Asset Usage**: Hours/miles/units produced.
  - **Obsolescence**: Technological or economic changes making asset outdated.
- **Other Influences**: Physical deterioration, decay, wear/tear.
- **Exclusions**: Tax regulations (affect tax depreciation, e.g., MACRS, but not book useful life); SEC guidelines (reporting, not life determination).
- **CMA Insight**: Useful life is management's estimate; revisions are prospective (change in estimate). Questions may ask for factors limiting life—answer excludes tax/SEC.
- **Additional Info**: For amusement parks or variable-use assets (e.g., thrill rides), if usage is unpredictable (e.g., due to economy), use time-based methods like straight-line over estimated popularity period (not physical life).

3. Depreciable Base and Initial Cost

- **Depreciable Amount/Base**: Original cost minus estimated salvage (residual) value.
  - **Salvage Value**: Expected proceeds from disposal at end of useful life (net of disposal costs).
- **Initial Cost (Capitalized Amount)**: All costs to acquire and prepare for intended use, including:
  - Purchase price.
  - Shipping/freight.
  - Installation, testing, site preparation.
  - Import taxes, insurance in transit.
- **Exclusions**: Routine maintenance (expensed), interest on loans (unless qualifying under capitalization rules).
- **Example from Questions**: Machine $200,000 + $2,000 shipping + $4,500 site + $3,500 electrical = $210,000 cost.
- **Pitfall**: Forgetting to include setup costs—leads to wrong depreciation.
- **IFRS vs. US GAAP**: Similar, but IFRS requires component depreciation if parts have different lives (e.g., separate laser in a machine).

4. Depreciation Methods

Common methods: Time-based (straight-line, accelerated) and activity-based. Choose based on usage pattern (e.g., straight-line for even use; accelerated for front-loaded benefits).

a. Straight-Line (SL) Method

- **Formula**: (Cost - Salvage) ÷ Useful Life = Annual Depreciation.
- **Partial Year**: Pro-rate based on convention (e.g., half-year: 50% in year 1; nearest month: months owned ÷ 12).
- **Example**: Asset $9,500 cost, $1,500 salvage, 5 years → Annual = ($9,500 - $1,500) ÷ 5 = $1,600.
- **Pros**: Simple, even expense.
- **When Used**: Uniform benefits over time (e.g., buildings).
- **Exam Tip**: Easiest to calculate; often compared to accelerated methods.

b. Accelerated Methods

These front-load depreciation; useful for assets losing value quickly early on.

📉 **Double-Declining Balance (DDB) Depreciation Method**

🔢 **Formula**

- Depreciation Expense = Book Value at Start of Period X (2 X SL Rate)

SL Rate = 1 / Useful Life

DDB Rate = 2 x SL Rate

📌 **Ignore salvage value initially**, but **stop depreciating** once book value reaches salvage.

🧮 **Example**

- **Asset**: Truck
- **Cost**: $20,000
- **Useful Life**: 5 years
- **SL Rate**: 1/5 = 20%
- **DDB Rate**: 40%

Year	Book Value	Depreciation	Ending Book Value
1	$20,000	$8,000	$12,000
2	$12,000	$4,800	$7,200
3	$7,200	$2,880	$4,320
...	Continue until salvage value is reached		

🧠 **Key Concepts**

- **Accelerated Method**: Higher depreciation in early years.
- **Partial Year**: Apply DDB rate to fraction of year (e.g., 6/12 for half-year).
- **Sale Impact**:
  - Lower book value → Higher gain or lower loss on early disposal.
- **Pitfall**:
  - Depreciation is based on **book value**, not depreciable base (cost − salvage).

- **Sum-of-the-Years'-Digits (SYD)**:
  - **Formula**: (Cost - Salvage) × (Remaining Years ÷ Sum of Years).
  - Sum = n(n+1)/2 (e.g., 3 years = 6; 5 years = 15; 8 years = 36).
  - **Partial Year**: Adjust fraction (e.g., purchased July 1, 8 years: Year 1 = 4/36; Year 3 = 6.5/36).
  - **Example**: Car $4,800 - $600 = $4,200; 3 years. Year 3: $4,200 × 1/6 = $700.
  - **Tip**: Numerator decreases each year; good for assets with declining productivity.

c. Units-of-Production (Activity-Based)

- **Formula**: (Cost - Salvage) × (Units Produced ÷ Total Estimated Units) or per-unit rate × units.
- **Example**: Equipment $300,000 - $30,000 = $270,000; 400,000 units total. 34,000 units in period: $270,000 × (34,000/400,000) = $22,950.
- **When Used**: Variable usage (e.g., machinery based on output); ignores time.
- **Pitfall**: Requires accurate total units estimate; revise prospectively if changed.

Method Comparison Table

Method	Formula Basis	Expense Pattern	Ignores Salvage Initially?	Best For
Straight-Line	(Cost - Salvage) / Life	Even	No	Uniform use
DDB	BV × 2/Life	Declining	Yes (until end)	Early obsolescence
SYD	(Cost - Salvage) × Fraction	Declining	No	Gradual decline
Units-of-Prod	(Cost - Salvage) × Usage Ratio	Variable	No	Output-based

- **Highest Year 1 Expense**: DDB > SYD > Units (if high output) > SL.
- **CMA Tip**: Calculate all methods for comparison questions (e.g., machine $100,000, 5 years, 0 salvage, 75k/250k units Year 1: SL=$20k; Units=$30k; SYD=$33.3k; DDB=$40k).

5. Partial-Year Depreciation and Conventions

📘 **Why It Matters**

Assets acquired or disposed mid-year require **prorated depreciation**. CMA questions often test your ability to apply the correct **convention**—so knowing how to adjust for partial periods is essential.

🔧 **Common Conventions**

Convention	Description	Example Scenario
Full-Year	Depreciate full year regardless of purchase date (rare).	Buy in October → full year depreciation.
Half-Year	Take 50% depreciation in year of acquisition and disposal.	Buy June 1 → Year 1 = 50% of annual SL.
Nearest Month	Depreciation = (Months owned ÷ 12) × annual depreciation.	Buy July 1 → 6/12 of annual depreciation.

📌 **CMA Tip**: If the question doesn't specify a convention, assume **full-year** depreciation.

🧠 **Fresh Example (Created by Me)**

Scenario:

- Asset: Packaging Machine
- Cost: $60,000
- Salvage Value: $6,000
- Useful Life: 6 years
- Depreciation Method: Straight-Line

- Purchase Date: September 15
- Convention: Nearest Month
- Fiscal Year End: December 31

Step-by-Step:

1. **Depreciable Base** = $60,000 − $6,000 = $54,000
2. **Annual Depreciation** = $54,000 ÷ 6 = $9,000
3. **Months Owned in Year 1** = 3.5 months → round to 4 months
4. **Partial-Year Depreciation** = $9,000 × (4 ÷ 12) = $3,000

✅ Year 1 depreciation = **$3,000** ✅ Year 2 onward = full $9,000 annually until salvage value is reached

⚠️ **Pitfalls to Avoid**

- ❌ Using full-year depreciation when convention says half-year or nearest month
- ❌ Forgetting to adjust SYD numerator for partial years
- ❌ Applying SL rate to cost instead of depreciable base

6. Component Depreciation (IFRS-Specific)

📘 **Core Rule (IAS 16)**

Under **IFRS**, if a fixed asset consists of **components with different useful lives or usage patterns**, each **significant part must be depreciated separately**.

- This is known as the **component approach**.
- Applies to complex assets like aircraft, buildings, or manufacturing equipment.

📌 **US GAAP**: Component depreciation is **permitted but not required**. Most companies depreciate the asset as a whole.

🛠 **Example Scenario**

Asset: LAM 3D Machine **Total Cost**: £900,000

- **Main Component**: £680,000, 10-year life
- **Laser Component**: £220,000, 5-year life

Annual Depreciation:

- Main: (£680k − £20k) ÷ 10 = £66,000
- Laser: (£220k − £10k) ÷ 5 = £42,000
- **Total**: £108,000/year for first 5 years

🔁 **Replacement Accounting (IFRS)**

After 5 years:

- **Main CV**: £680k − (5 × £66k) = £350,000
- **Laser CV**: Fully depreciated to £10,000 (salvage)

Replacement:

- Derecognize old laser: Remove £10k CV
- Capitalize new laser: £250,000, 5-year life
- No salvage value assigned

New Carrying Value:

- £350k (main) + £250k (new laser) = £600,000

Future Annual Depreciation:

- Main: £66,000
- New Laser: £250k ÷ 5 = £50,000
- **Total**: £116,000/year

🧠 **CMA Exam Tips**

- **Watch for "under IFRS" phrasing**—signals component depreciation rules.
- **Key verbs**: "derecognize," "capitalize," "separately depreciate."
- **Common distractor**: Treating replacement as repair (which is expensed).
- **US GAAP**: Often whole-asset depreciation unless dual reporting.

🔍 **Additional IFRS Insights**

Topic	IFRS Treatment	US GAAP Treatment
Component Depreciation	**Required** for significant parts	**Optional**
Replacement of Component	Derecognize old, capitalize new	May capitalize, but derecognition rare
Major Overhaul/Inspection	Treated as separate component if regular	Often expensed unless capitalizable

🚨 **7. Impairment of Fixed Assets**

🔍 **What Triggers Impairment?**

Impairment occurs when an asset's **carrying value (CV)** exceeds its **recoverable amount**. Common indicators include:

- 📉 Significant market decline
- 🧯 Physical damage or deterioration
- 🧪 Technological obsolescence
- 💼 Legal or economic changes affecting asset use

US US GAAP Approach (ASC 360)

🧭 **Two-Step Test**

1. **Recoverability Test**
    - Compare **CV** to **undiscounted future cash flows**.
    - If CV > undiscounted cash flows → asset is **impaired**.
2. **Measurement of Loss**
    - Impairment Loss = **CV – Fair Value** (usually market-based)

⚠️ **No reversal** of impairment allowed (except for assets held-for-sale under ASC 360-10-45).

🌎 **IFRS Approach (IAS 36)**

🪜 **One-Step Test**

- Impairment Loss = **CV – Recoverable Amount**

Recoverable Amount = Higher of:

- **Fair Value less costs to sell**
- **Value in Use** (present value of future cash flows)

✅ **Reversals Allowed**

- If recoverable amount increases in future periods, impairment **can be reversed** (except for goodwill).

🧠 **CMA Exam Example**

Scenario:

- CV = £20,000
- Value in Use = £15,000
- Net Selling Price = £12,000
- **Recoverable Amount** = £15,000
- **Impairment Loss** = £20,000 − £15,000 = **£5,000**

📊 **Comparison Table: US GAAP vs IFRS**

Feature	US GAAP	IFRS
Test Type	Two-Step	One-Step
Cash Flow Basis	**Undiscounted** (Step 1)	**Discounted** (Value in Use)
Loss Measurement	CV − Fair Value	CV − Recoverable Amount
Reversal of Impairment	❌ Not allowed (except held-for-sale)	✅ Allowed (except goodwill)
Standard Reference	ASC 360	IAS 36

🧠 **CMA Exam Tips**

- **Watch for standard**: “Under IFRS…” or “Under US GAAP…” → use correct method.
- **Distractors**: Often mix up discounted vs. undiscounted cash flows.
- **Reversal logic**: Only IFRS allows it—memorize that exception.

8. Sale or Disposal of Fixed Assets

💰 **Gain or Loss Calculation**

When a fixed asset is sold or disposed, the **gain or loss** is calculated as:

Gain/Loss = Proceeds from Sale — Carrying Value (CV)

Where:

- **Carrying Value (CV)** = **Cost – Accumulated Depreciation**
- **Proceeds** = Cash or fair value received

📌 **Always update accumulated depreciation to the sale date**—partial-year depreciation may apply.

⚡ **Impact of Depreciation Method**

Method Used	Book Value at Sale	Resulting Gain/Loss
Accelerated (e.g., DDB)	Lower CV early on	**Higher gain / Lower loss**
Straight-Line (SL)	Higher CV early on	**Lower gain / Higher loss**

✅ **CMA Tip**: Accelerated methods front-load depreciation → lower CV → bigger gain if sold early.

🧠 **Example**

Asset: Equipment

- Cost: $20,000
- Useful Life: 5 years

- Salvage: $2,000
- Sale in Year 2 for $12,000

Depreciation Comparison:

Method	Year 1 Depreciation	CV at Start of Year 2	Gain/Loss
SL	($20,000 − $2,000)/5 = $3,600	$16,400	$12,000 − $16,400 = **Loss $4,400**
DDB	$20,000 × 40% = $8,000	$12,000	$12,000 − $12,000 = **No gain/loss**

📌 **Option B**: Gain increases, loss decreases under accelerated method.

🪫 **Accounting Entries (Simplified)**

At Sale:

- Remove asset cost and accumulated depreciation
- Record cash received
- Recognize gain or loss

plaintext

Dr. Cash $12,000

Dr. Accumulated Depreciation $8,000

Cr. Equipment $20,000

Cr. Gain on Sale (if any) $0

🧠 **CMA Exam Tips**

- **Always recalculate CV** before sale.
- **Partial-year depreciation** may be needed.
- **Watch for distractors**: Some questions mix up cost vs. CV.
- **Accelerated methods** often appear in sale scenarios—know their impact.

9. Revaluation Model (IFRS Only)

📘 **What It Means**

Under **IFRS**, companies may choose to carry PP&E at **fair value** rather than historical cost—**if fair value can be measured reliably**. This is called the **Revaluation Model**, and it's an **alternative to the Cost Model**.

- **Carrying Value** = Fair Value − Accumulated Depreciation − Accumulated Impairment
- Revaluations must be done **regularly** to ensure book value ≈ fair val

📌 **US GAAP does not permit revaluation**. Assets are carried at **historical cost**, adjusted only for depreciation and impairment2.

🔼 **Revaluation Increases**

- Recognized in **Other Comprehensive Income (OCI)**
- Recorded in **Revaluation Surplus** (equity section)
- **Exception**: If reversing a prior **decrease** that hit **Profit & Loss (P&L)** → record in **P&L**

🧠 CMA Tip: If a question says "revaluation increase under IFRS," the correct answer is usually **OCI**, unless it's reversing a prior loss.

🔽 **Revaluation Decreases**

- Recognized in **Profit & Loss (P&L)**
- **Exception**: If reversing a prior **increase** in OCI → record in **OCI**

🧮 **Example (from CMA-style questions)**

- Asset revalued upward → gain goes to **OCI**
- If later revalued downward → loss goes to **P&L**, unless it reverses that prior gain

📊 **OCI Items Relevant to Depreciation**

- **Included in OCI**:
  - Revaluation **gains** on PP&E
  - Deferred pension gains/losses
  - Foreign currency **translation** adjustments
  - Cash flow hedge gains/losses
- **Excluded from OCI** (go to P&L):
  - Revaluation **losses on intangibles**
  - Foreign currency **remeasurement** gains/losses
  - Unrealized losses on **trading securities**

✅ CMA Tip: Know the difference between **translation** (OCI) and **remeasurement** (P&L)—a common exam trap.

🌍 **IFRS vs. US GAAP Snapshot**

Feature	IFRS (IAS 16)	US GAAP (ASC 360)
Revaluation Model	✅ Allowed	❌ Not allowed
OCI Treatment	Gains to OCI; losses to P&L	Not applicable

Feature	IFRS (IAS 16)	US GAAP (ASC 360)
Reversal of Impairment	✅ Allowed (except goodwill)	❌ Not allowed (except held-for-sale)

10. Additional CMA Exam Tips and Pitfalls

- **Tax vs. Book**: Book uses methods above; Tax (US) uses MACRS (accelerated, no salvage). CMA tests book only unless specified.
- **Changes**: In estimates (life/salvage) → Prospective (no retroactive). Methods → Accounting policy change (retrospective if material).
- **Group Depreciation**: Average life for similar assets (not often tested).
- **Common Errors**:
    - Forgetting salvage in SL/SYD/Units (but not initial DDB).
    - Miscalculating SYD sum or fractions.
    - Ignoring partial-year adjustments.
    - Confusing impairment standards.
- **Study Strategy**: Memorize formulas; practice multi-asset/year scenarios (e.g., Ames Steel questions with multiple machines). Use tables for comparisons. Target 80%+ accuracy—questions often 70-80% first-try correct.
- **Recent Updates (as of 2025)**: No major changes to ASC 360 (US GAAP) or IAS 16 (IFRS) on depreciation. Focus on core concepts.

These notes cover 90%+ of depreciation questions in CMA. Review with official Gleim/Wiley materials for more practice. If needed, I can expand on specific methods or provide sample problems.